

Bay Area Air Quality Management District
Health Risk Screening Analysis, A# 16042
Alco Iron & Metal, P# 3360
October 11, 2007

This document describes the basis for the health risk screening analysis prepared for Alco Iron & Metal located at 1091 Doolittle Drive, San Leandro, CA 94577. This facility wishes to operate a new Pyrolysis Oven at their facility to remove insulation from electrical components, so that the metal can be recycled. In order to do this, the facility must get a permit from the Bay Area Air Quality Management District (BAAQMD). As part of the evaluation of the permit application, the BAAQMD has prepared a health risk screening assessment (HRSA) for the oven.

The combustion of some plastic compounds, such as scrap wire with PVC coating and cable casings with chlorinated compounds, generates small amounts of polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). These compounds are known toxic air contaminants (TAC) and carcinogens. The BAAQMD has evaluated the hypothetical impacts of these compounds from this source, (expressed as an equivalent value of 2,3,7,8-PCDD) along with estimated benzene and formaldehyde emissions (also toxic air contaminants) that occur from combusting propane in the oven. The impact of the emissions from the Pyrolysis Oven is expressed in terms of the increased risk of contracting cancer for individuals who live or work near the facility. Note that the District permit will prohibit parts coated with, containing or contaminated with plastic, polymer or PVC, chlorine, fluorine, sulfur or elements other than carbon, hydrogen and oxygen, from processing by the Alco pyrolysis furnace.

The EPA ISCST3 air dispersion computer model was used to estimate annual average ambient air concentrations. This model uses information about the facility and emission rates of toxic air contaminants together with representative meteorological and terrain data to estimate what TAC concentrations would be expected in the air at various locations around the site.

The potential cancer risk was calculated using standard risk assessment methodology. For residents, they include the assumptions that exposures are continuous for 24 hours per day, 350 days per year for a 70-year lifetime. Risk estimates for offsite workers assume potential exposure occurs 8 hours per day, 245 days per year, for 40 years. The cancer risk is based on the "best estimates" of plausible cancer potencies as determined by the Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA). The actual cancer risk, which cannot be determined, may approach zero. This type of analysis is considered to be health-protective.

The potential for non-cancer health effects is evaluated by comparing the long-term exposure level to a Reference Exposure Level (REL). A REL is a concentration level at or below which no adverse health effects are anticipated. RELs are designed to protect sensitive individuals within the population. Comparisons to RELs are made by determining the hazard quotient (HQ), which is the ratio of the estimated exposure level to the REL. The hazard index (HI) is the sum of the individual HQs for TACs identified as affecting the same target organ or organ systems.

The proposed project would result in an increased maximum cancer risk of 0.1 chances in a million, and a chronic non-cancer hazard index of 0.0001 for workers near the source. The nearest residents have an increased cancer risk of only 0.003 chances in a million and a negligible non-cancer hazard index. These health risk values, presented in the table below, meet the criteria for acceptable levels established in Regulation 2, Rule 5.

Receptor	Cancer Risk in a Million	Chronic Hazard Index
Resident	0.003	Negligible
Off-Site Worker	0.1	0.00011